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MANGO VALUE CHAINS IN WEST AFRICA

SUPPORT TO PROMOTE TRADE AND
VALUE ADDITION OF MANGO VALUE
CHAINS IN BURKINA FASO, GHANA, AND
SENEGAL –
PROGRESS OF THN INTERVENTIONS IN
2015 AND OPPORTUNITIES FOR FY 2016

MISSION REPORT 5

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MANGO VALUE CHAIN IN WEST AFRICA

SUPPORT TO PROMOTE TRADE AND VALUE ADDITION OF THE MANGO VALUE CHAIN IN BURKINA FASO, GHANA, AND SENEGAL

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ACRONYMS

| | |
|-----------------|--|
| ACTE | African Competitiveness and Trade Hub Expansion |
| ASEPEX | Agence Sénégalaise de Promotion des Exportations |
| APEMA-B | Associations Professionnels des Exportateurs des Mangue (Burkina Faso) |
| APROMA-B | Associations Professionnels des Producteurs des Mangues (Burkina Faso) |
| CFAHS | Coopérative Fédérative des Acteurs de l'Horticulture au Sénégal |
| CI | Cote D'Ivoire |
| CIR | Cadre Intégré de Renforcement |
| COLEACP | Europe-Arica-Caribbean-Pacific Liaison Commette (COLEACP) Comité de liaison Europe-Afrique-Caraïbes-Pacifique (COLEACP) |
| DPV | Département de Protection des Végétaux |
| DWAMF | Dangme West Association of Mango Farms (Ghana) |
| ECOWAS | Economic Community of West African States |
| FAF | Financial Access Facilitators |
| FTF | Feed the Future |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| GVCC | Global Value Chain Coordinator (THN) |
| HACCP | Hazard Analysis and Critical Control Point |
| IPM | Integrated Pest Management |
| LOC | Letter of Collaboration |
| MCC | Millennium Challenge Corporation |
| MENA | Middle East and North Africa |
| MOU | Memorandum of understanding |
| MT | Metric Tons |
| MVCA | Mango Value Chain Advisor (THN) |
| MCVS | Mango Value Chain Advisor |
| MVCS-G | Mango Value Chain Specialist--(Ghana) |
| MVCS-B | Mango Value Chain Specialist-Burkina Faso |
| MVCS-S | Mango Value Chain Specialist-Senegal |
| MVCWG | Mango Value Chain Working Group |
| NMCFMU | National Mango Farmers Co-operative and Marketing Union (Ghana) |
| PAFASP | Programme d'Appui aux Filières Agro Sylvo-Pastorales (Burkina Faso) |
| PAMPEG | Papaya and Mangoes Producers and Exporters of Ghana |

| | |
|--------------|---|
| SDP | Strategic Development Plan |
| THN | Trade Hub Network (West Africa) |
| UEMOA | Union Economique et Monétaire Ouest Africaine |
| VC | Value Chain |
| YKMFC | Yilo Krobo Mango Farmers Cooperative (Ghana) |

I. EXECUTIVE SUMMARY

The purpose of the present report is to (i). Update the ongoing West Africa Trade Hub Network Project (THN) interventions in the mango value chain under its global value chain development activities implemented during the mango season started in June to September 2015 in Ghana, Senegal, and Burkina Faso and (ii). To identify the opportunities for THN interventions to be considered under work planning of FY16.

The THN interventions focused in 2015 were mainly to support improving the production of quality mangoes and supporting mango packing facilities to increase export, regional and local markets. In line with this objective, the THN has affirmed several partnerships with mango value chain (VC) stakeholders, inter-professional associations and enterprises in Burkina Faso, Ghana and Senegal. The information used in the report is collected during the mission by MVCA (Dr. Patrick Nugawela) from 15th July to 15th August 2015 in Burkina Faso, Ghana, and Senegal.

I.1. Major observations on Mango VC and THN interventions in the 3 countries

- i. **THN consolidating its position as a valued facilitator** to promote the mango VC in the three countries
- ii. **THN training modules focused on improving quality for production impact increase of exports and to promote quality products in local and regional markets.** These training benefited 703 farmers, harvesters and representatives of exporters in the 3 countries
- iii. **Each country tends to develop specializations in the value chain and their competitive advantages.** These specific characteristics of each country in the value chain require THN to focus on different technical assistance programs and approaches in each country based on different business models of interventions.
- iv. **Haut Basin region in Burkina Faso demonstrates characteristics of emerging mango production cluster in the West African region.** THN could contribute to promote this cluster as a development model of mango VC.
- v. **Senegal private sector invests in a large mango pulp production factory.** Has a capacity of processing 10,000 MT of fresh mangoes a year.
- vi. **New initiative to formalize and promote local retail market selling quality mangoes in Senegal through introducing specialized market outlets.** This is an initiative promoting educated youths in new business.
- vii. **Concerns expressed in Senegal and Burkina Faso for the need to renew plantations and to develop quality seedlings nurseries.** The existing plantations are becoming too old and increasingly unproductive.

Based on the above observations, the status of THN interventions in each country and prospects for new activities in 2016 are identified and recommended.

I.2. Status by country

I.2.1. Ghana

• THN interventions performance in Ghana in 2015

In Ghana, THN supported training of farmer-trainers on best practices on Protection of production, Phytosanitary controls and harvesting techniques of mangoes in Somanya region. Under this program,

THN supported training of 177 farmer trainers, comprising of 118 in collaboration with Yilo Krobo Mango farmers Cooperative (YKMFC) in Somanya region, and 59 in Somanya region in collaboration with Dangme West Association of Mango Farmers (DWAMF). In addition, THN facilitated the rehabilitating and restarting of the mango pack house in Akorley in Somanya to provide services for export packing and to supply quality mangoes to processing and local market and trained 6 technicians to operate the pack house. Two other training programs are being initiated to train 280 farmers on flower Induction, phytosanitary controls and harvesting techniques in Brong Ahfo, Eastern and Volta regions in collaboration with export oriented processing companies (HPW and BOMARTS) to start in phases from September 2015 and to continue in 2016.

- **Opportunities for THN interventions in FY 2016**

In the year 2016, while consolidating the activities already implemented, THN interventions to support the value chain should be diversified with a much larger range of players through building up business models involving larger number of associations, and individual high impact enterprises. These need to include (i). continuity to focus on production of quality mangoes for exports, processing and sales to local market facilitated through farmer level training on best practices in production and harvesting, supporting establishment of pack houses, bulking centers and quality control facilities, (ii) promoting high quality certified fresh mango through support to certifications such as Global Gap, HACCP and other international standards, (iii) promoting high value processed products for exports, and (iv) supporting to build capacity of sector associations to provide services to members.

1.2.2. Burkina Faso

- **THN interventions Performance in Burkina Faso in 2015**

THN interventions in Burkina Faso were also focused on training of farmers through inter-professional associations and lead enterprises to promote high quality production of mangoes for trade. THN worked with APROMA-B to train 210 small and medium farmers on agriculture harvesting best practices in seven zones in the mango producing areas, with APEMAB to train 59 harvesters in order to supply of mangoes for export through a leading pack house Ranch de Koba in Bobo Dioulasso, and with a lead enterprise DAFANI to train 200 harvesters in 10 locations in the Banfora region. The planned activity to support key exporter –processor “Sanle Secharge” company to establish a collecting, bulking, and packing center in the Banfora region is rescheduled for 2016.

- **Opportunities for THN interventions in FY 2016 in Burkina Faso**

Burkina Faso continues to be a source of fresh exports to Europe, mainly using overland routes. Therefore, the support to produce quality mangoes should continue while supporting the increase efficiency of pack houses and creating of bulking houses and improving harvesting techniques. The region of Haut Basin in Burkina Faso is emerging as a mangoes drying center for exports. Support to improve mango drying activity in Burkina Faso will have a high impact on increase trade in value added mangoes in the future from this region. Burkina Faso is also emerging as a supply source of mangoes within the region for regional trade which is an important strategy to be facilitated in the future. In addition, the region of Haut Basin, centered around Bobo Dioulasso is an important mango production cluster developing in Burkina Faso with links to the countries across the border. A professional analysis of the mango cluster in this region will produce guidelines and options for new interventions by the stakeholders converting the region in to high impact mango production cluster in West Africa.

Other interventions proposed for FY 2015 for Burkina Faso includes: (i). Certifications for quality of mangoes production, (ii).Enhancing mango drying industry model based on lead and sub contracting

enterprises, (iii). Working with lead enterprise to train all the management and technical staff of subcontractors of mango drying industry, (iv). Supporting to manage the mango waste of processing units, (v). Supporting firms to break in to the organic mango products market, (vi). Promotion of certified mango seedlings nurseries, (vi). working with processors to link with Supplier/Producer linkages- Contract production to increase quality of harvested mangoes for processing, (vii). Supporting initiatives to increase efficiency and options of mango drying technology and accessing new sources of drying technologies, (viii). Supporting the establishment of a collecting center with pack house facilities in the region of Banfora, through a lead enterprise "Sanle Secharge" in Banfora region, and (viv). Support to development of Haut Basin Region in Burkina Faso as mango trade development Cluster.

I.2.3. Senegal

- **THN interventions Performance in Senegal in 2015**

Due to limited time available for the season, the main interventions implemented in Senegal in 2015 comprised of training of 51 lead farmer trainers and representatives of exporters through the exporters association CFAHS and DPV on best agriculture practices and harvesting techniques. The program was conducted in two zones initially and facilitating contacts to promote supplies to a key processor of mango pulp known as AgroFruits Company – a subsidiary of Kiren Company.

- **Opportunities for THN interventions in FY 2016**

Senegal exported 15,000MT of premium quality fresh mangoes up to June 2015 to EU countries, Middle East and North Africa and exports also second grade mangoes to Ghana for processing. Senegal has long experience in controlling fruit flies and implementing phytosanitary requirements in the mango value chain. Senegal has a large number of exporting companies, expanding local retail market of mangos employing large numbers of women and youth and has the largest mango pulping facility in West Africa started operations in August 2015. These specific characteristics of the mango value chain in Senegal confirm its high potential of the mango trade at international, regional and local retail markets.

Therefore, the future THN interventions should continue and consolidate the activities of training implemented in 2015, while expanding in to implementation of a series of diversified sustainable business models to promote the mango VC. These include mainly: (i). Certifications for quality of mangoes – through member associations for exports –with the next step being training, (ii). Facilitate training on best practices of contract farm supplies to exporters and processors (iii). Facilitate linkages between processor Agro Fruits, and Pack house Hortica Sénégal with the commune Diess where the two facilities are operating for supplies of mangoes and labor and to develop the commune as a growth center built around mango production and processing , (iv). Promotion of certified mango seedlings nurseries (v). Formalized retail trade of quality mangoes in urban markets in Senegal (vi). Support to establish a collecting and bulking center with pack house facilities in the region, and (vii). Support to establish a Mango drying unit with private sector and support to strengthen associations to provide better services to members,

I.3. Way forward- recommendations for next step

The support to mango value chain in the three countries at this stage by THN comprises two aspects on which details are given in the relevant section of the report:

- (I) Follow up and consolidate the interventions implemented during the 2015 mango season.
- (II) Planning and implementations of new interventions based on recommendations above for 2016.

I.4. Other specific recommendations

Under the 2016 work plan for the Mango VC, THN plans the expansion of the activities of the mango value chain interventions to Cote D'Ivoire and Mali in addition to Ghana, Senegal and Burkina Faso. These changes and new interventions will have much broader work plans in the five countries and it will require several changes in terms of staff requirements and logistics supports in additions to a clear expansion of collaborating partner institutions such as mango value chain inter=professional associations 's capacity in the implementation of the work plans in 2016. Therefore, considering these changes, the following recommendations are suggested:

- Review the staff requirements to implement the work plans in newly added two countries in addition to the capacity required to coordinate a larger mango VC program together with cashew value chain activities at the home office level in Accra.
- In case of Mali, the present MVCS in Burkina Faso working for THN have sufficient experience to follow up work in Mali,
- In case of Cote D'Ivoire, a new bilingual expert needs to be recruited,
- The TORs of all MVCS of Ghana Senegal and Burkina Faso need to be reviewed and their contracts need to be revised incorporating the new activities of the programme
- Specific missions should be undertaken to expand to Mali and Cote d'Ivoire as soon as possible before 2016 to assess the status and opportunities for interventions of THN in the two value chains in relation to the work plans of FY 2016.

2. INTRODUCTION

2.1 BACKGROUND

USAID/West Africa's Mission-wide goal is the West-African led advancement of social and economic well-being. This goal is supported by several development objectives, including "broad-based economic growth and resilience advanced through West African partners." The Trade Hub and African Partners' Network Project (the "Trade Hub Network" - THN) will contribute to this development objective by achieving two critical intermediate results:

- I) Improving the capacity of West Africa's farmers and firms in targeted regional and global value chains.
- II) Improving the business enabling environment by addressing transport constraints and trade barriers affecting the efficiency of the region's corridors and borders.

The Trade Hub project works through regional private sector associations and regional governmental entities to help channel all partners' efforts in a way that will address critical constraints to trade competitiveness, capture opportunities to expand trade, demonstrate West Africa's productive potential to investors, and facilitate greater investment in the region. Its results will include both an increase in 1) regional trade in key agricultural commodities, a critical Feed the Future (FTF) indicator, and in 2) value-added global exports, a targeted indicator for the Africa Competitiveness and Trade Expansion (ACTE) Initiative, which ultimately aims to increase Africa's share of world trade.

The project will build the capacity of several key groups of African partners from regional private sector associations and alliances. Stakeholders include the Economic Community of West African States (ECOWAS), the Economic and Monetary Union of West Africa (UEMOA); the multi-donor funded Transport and Facilitation Observatory, as well as many global development alliances with private sector companies. As the Trade Hub works with associations and regional alliances, it will help them serve as leaders in promoting reforms, attracting buyers and investors, and adopting improved practices. Eventually, the Trade Hub's partners are expected to act independently and take on even greater leadership roles.

The Trade Hub Project comprises several components. These include:

- Regional staple foods development (livestock and grains)
- Global value chain development (targeted agro-processing and manufactured consumer goods, such as mangos, cashews, and apparel)
- Finance and investment
- Transport and the trade enabling environment
- Capacity building
- Communications
- Administration and management, including grants administration

2.1. CONTEXT OF THIS ASSIGNMENT

The purpose of the present assignment was specifically to follow-up the ongoing West Africa Trade Hub Network (THN) Project interventions in the mango value chain as part of its global value chain development activities, which were implemented during the mango season from June to September 2015. These interventions were identified and planned based on discussions with key stakeholders in the

mango sector in the three countries –Ghana, Senegal and Burkina Faso. The THN interventions to be supported are focused on increasing the production of quality mangoes and to increase the trade of mangoes through exports, as well as through regional and local markets. In line with this objective, the THN has affirmed several partnerships with mango value chain (VC) stakeholders (composed of Inter-professional associations and enterprises in Burkina Faso, Ghana and Senegal) and is intending to establish and expand new partnerships in the region, particularly in Cote D'Ivoire and Mali. The Mango VC adviser (MVCA), while following-up the progress of ongoing THN interventions planned for the 2015 mango season, was also able to identify new opportunities to consolidate and expand THN interventions for year 2015-2016. In addition, the MCVA contributed to work planning of THN to expand its interventions to support mangoes and cashew value chains in Mali and Cote D'Ivoire in 2016.

This mission follows the recommendations of the previous mission (Ref. Report –on mission 4) by the MVCA carried out in early June 2015. Therefore, the present report is an update of the status of the activities implemented through THN interventions to support the increased trade of the mango value chain during the current year and also to provide suggestions and guidelines to continue interventions through 2016. The information used in the report is collected during the mission by MVCA (Dr. Patrick Nugawela) from 15th July to 15th August 2015 in Burkina Faso, Ghana, and Senegal. A list of persons and institutions contacted during this mission are presented in annex I of this report.

2.2. METHODOLOGY AND PRELIMINARY REMARKS

2.2.1. METHODOLOGY

The MVCA visited the countries of Burkina Faso, Senegal, and Ghana between July 15 and August 15 2015. With the assistance of MVCSs in Burkina Faso and Senegal and Ghana, meetings were organized with the key partners working with THN on activities planned under the current mango season. In 2015, The MVCA visited Burkina Faso from July 15 to July 26, Senegal from July 26 to August 2, and Ghana from August 2 to August 14. The THN recruited two mango value chain specialists (MVCS-B and MVCS-S) in Burkina Faso and in Senegal, following the recommendations of the MCVA from previous missions, who have been in place since the month of June 2015. The specialists are actively involved in the implementation of the activities facilitated by THN in collaboration with the related partner institutions in their respective countries. They also serve as resource personnel for implementing the training programs. These specialists present in the countries of Burkina Faso and Senegal together with the GVCA based in Senegal and the MVCS in Ghana (MVCS-G), which is facilitated by the MVCA in order to complete the mission as planned.

In Burkina Faso, The MVCA met with the key associations, enterprises, and technical assistance projects. These organizations consist of PAFESPE, Cadre Intégré De Renforcement (CIR), private enterprises DAFANI and Gebana Afrique, as well as a few other players. In Senegal, the mission met with the consultant who implements training programs for future trainers on the best practices of protecting the production and harvesting of mangoes for export, and the President of the CFHAS (The association facilitating the training). In addition, the focus in Senegal was mainly to meet with the private enterprises engaged in processing and exporting mangoes in order to design the future interventions for Senegal in the coming year.

In Ghana, the main focus was to assess the results of training programs. This included teaching the best practices of mango farm management within mango farmers associations, the mango pack house activities, and planned training for farmers on best practices of farm management and harvesting techniques, with two major processing companies –HPW and BOMARTS. In addition, discussions were held with stakeholder, to plan the activities for the 2015 -2016 season, as well as with Martin Webber,

Competitiveness and Value Chain Advisor (CVCA), who was present in Ghana to participate at the FY2016 work planning sessions.

In addition to the follow-up work and identification of activities for year 2016, the MVCA also participated in the work planning sessions of the FY 2016 mango value chain activities for Senegal, Ghana, Burkina Faso, and Cote D'Ivoire. Major conclusions of the mission were presented during an internal briefing meeting on August 12th 2015 at the THN office in Accra.

2.2.2. SPECIFIC OBSERVATIONS OF THE MISSION

In addition to the follow-up work of THN supported interventions in the three countries supporting the mango VC, some of the general observations of the MVCA are listed below.

I) Status of THN as a key facilitator to promote the mango VC in the three countries

THN is gradually consolidating its position as a valued facilitator to promote the mango value chain in the three countries through it's:

- Regular contacts and communications with the stakeholders, particularly with the associations
- Training modules implemented, which benefit a large number of players of the value chain
- The role as a facilitator of linking suppliers and producers, as well as exporters and processors
- Advisory services provided through the MVCA and Country MVCs to enterprises regularly
- Continued contact with other donor-supported projects in the three countries

II) THN training modules focused on improving quality for production

The THN, under its mango value chain development support program, Implemented several training programs covering best practices of farm management, phytosanitary controls, protection for export production, fruit fly controls, harvesting techniques, and technical training for the packing of mangoes for exports. These trainings include 703 farmers and harvesters already trained in the 3 countries, as well as 330 farmers and women traders to be trained in best handling practices of mangoes retail trade planned for 2015. Table I (below) summarizes this data. These training programs are considered a response to a timely need of the VC in the countries that need to be continued.

Table I – Summary Training Interventions supported by THN in three Countries

| No | Country | Interventions –Training | Locations | Number of beneficiaries | Remarks |
|-------------------|------------------|--|-----------|---------------------------|---|
| 1 | Burkina Faso | Best Practices in mango Farm management and harvesting techniques (farmers and harvesters) | 18 | 469 (83% Men & 17% women) | Collaboration with inter-professional Associations and DAFANI enterprise |
| 2 | Senegal | Protection of production, Phytosanitary controls, and harvesting | 2 | 51 (80% men & 20% women) | In association with CFHAS |
| 3 | Ghana | Best practices in mango farm management and packaging (177 farmers and 6 technicians at pack house | 3 | 183 (80% men & 20% Women | In Somanya region with two associations: YKMFC and DWAMF. In association with pack house in Akorley |
| Sub Total | | | 23 | 703 (82% Men & 18% women) | |
| | Planned in Ghana | September – on best practices of farm management and harvesting | 3 | 280 | Eastern, Volta and Brong Ahfo regions |
| | | pack house technical training of women traders | 1 | 50 | Planned for women traders |
| Sub Total Planned | | | 4 | 330 | |

III) Future interventions need to focus more on country specializations of the VC

Previous mission reports highlighted that countries are increasingly specializing in specific trade of the mango value chain.

- Burkina Faso expands the mango drying industry and begins sub-contracting the drying of mangos to Mali, Guinea, and Guinea Bissau
- Senegal increases the share in the high quality fresh mango in the export markets
- Ghana specializes in high value added processed mangoes

These specific characteristics of each country in the mango value chain require different technical assistance programs and approaches to upgrade the quality and potential of the industry. These would include appropriate technical training, new investments focused on new technologies, new certification requirements for exports, focusing on regional markets, upgrading technologies in drying, and obtaining access to different markets and appropriate financing services. Therefore THN, while consolidating and continuing the trainings to improve quality of production, should in the future focus on packaging and implementing replicable new business models that respond to specific needs of each country selected.

a) Other key observations – mango value chains in the three countries

- **The Haut Basin region in Burkina Faso demonstrates many characteristics of emerging concentrated mango production, processing and exporting cluster in the West African region.** Its geographic position in the middle of large mango zones in bordering countries makes this region an important hub for mango trade. Possible THN intervention with other stakeholders to develop this region as a mango cluster could have a significant impact in

the overall mango VC in the West African region in terms of quality, production, processing, regional trade, and exports.

- **The Senegal private sector invests in a large mango pulp production factory** with a processing capacity of 10,000 MT of fresh mangoes a year. This facility could open a market for non-exportable mangoes, increasing local value addition. This is an opportunity for THN to promote local markets for mangoes through linkages between producers and processors.
- **A new initiative to promote quality mangoes in the local retail market in Senegal** through introducing specialized market outlets has been initiated. This is an innovative approach of upgrading local retail markets that merits support.
- **Concerns have been expressed in Senegal and Burkina Faso for the need to renew plantations** and to develop quality seedling nurseries, as existing plantations are becoming too old and unproductive in the years to come. This is another opportunity that needs to be promoted through technical assistance and investments.

The specific details of THN interventions in each country and prospects for new activities in 2016 are described in the following sections.

3. THN INTERVENTIONS PRIORITIZED FOR 2015 AND OPPORTUNITIES FOR 2016

THN supported interventions in 2015 are selected as priorities from a broad set of proposals recommended for supporting the mango value chain in the three countries. The recommended interventions are aimed at promoting the quality of supplies for exports, regional trade, and processing for local mango markets. These interventions also aimed at introducing and developing replicable business models of business support to the value chain. The interventions prioritized for the current mango season by each country are detailed in the sections below.

3.1. GHANA: THN INTERVENTIONS IN THE 2015 SEASON AND OPPORTUNITIES IDENTIFIED FOR FY 2016

3.1.1. RESULTS OF CURRENT YEAR ASSESSMENT OF THN INTERVENTIONS IN GHANA

The details of the results obtained as well as the expected results of the trainings conducted in Ghana are given in the annex 2. Some of the key data of the results from the prioritized interventions that were planned to be implemented in Ghana during the 2015 season are as follows:

- I) Training of farmer-trainers on best practices of production protection, Phytosanitary controls, and harvesting techniques of mangoes in Somanva region: (implemented)
 - (a). Trained 118 farmer trainers, in collaboration with Yilo Krobo Mango Farmers' Cooperative (YKMFC), in Somanva region.
 - (b). Trained 59 farmer-trainers in Somanva region in collaboration with Dangme West Association of Mango Farmers (DWAMF)
- II) Rehabilitation and renewal of the mango pack house in Akorley, Somanva to provide services for export packing and to supply quality mangoes for processing and to local retail markets:
 - (a). Trained 6 technicians to operate the pack house.



Training sessions on best mango farm management Practices by THN trainer - Ghana –Somanva region

- III) Two other training programs are being initiated to train 280 farmers on flower induction, Phytosanitary controls, and harvesting techniques in Brong Ahfo, Eastern, and Volta regions, in collaboration with export-oriented processing companies (HPW and BOMARTS) to begin phases in September 2015 and continue phases into 2016 (The trainings program begin dates were postponed until September 2015).
- IV) Training of 50 local women traders on best practices for handling mangoes at a pack house in order to improve the quality of the mangoes in the local market with pack house postponed to 2016 (for the next season).

The table 2 below captures the present status and results assessment of current year interventions by THN to support the mango VC in Ghana.

Table2. Activities planned and implemented and results estimated for the year 2015

| N o | Partner organization | Activities implemented or planned | Results in terms of capacity building | Supplies for exports and local trade | Expected value estimated |
|--|---|--|---|---|--|
| 1 | Yilo Krobo Mango Farmers Association and Exporters-YKMFAE | Training on best practices of farm management and quality mango production | 183 farmer trainers trained | 2490MT | GH2,608,000 (US \$686,315-@ 1 US\$ =3.8GHC in July 2015) |
| 2 | Dangme West Association of Mango Farmers DWAMF | Training on best practices of farm management and quality mango production | | | |
| 3 | Cotton-Web link Portfolio Co., LTD | Start-up of Akorley pack house and training of technicians for mango packing | 6 technical staff trained | 560 MT for exports 162 MT for local market | 2,257,920GHC for exports/ or US \$594,189, and GHC 255,350 or \$67197 for local market |
| Programs postponed and to be implemented in 2015/2016 | | | | | |
| 1 | BOMARTS Farms and HPW combined program | Training support to use new techniques on flower induction, farm management, and harvesting techniques | 280 farmers in Brong-Ahafo, Volta and eastern regions | 1000 to 2000MT per season | US \$400,000 \$800,000 per season |
| 2 | pack House Akorley | Training of women on best practices on handling for local retail market | 50women traders | 7to 12 Tons weekly | Average US\$4,000 weekly or \$48,000 per season |
| | Total estimated | | 330 persons to be trained | | \$1,419,000 average |



Akorley Ghana mango pack house– commenced operations in 2015
Photo 1- arrival of mangoes for Packaging for exports –
Photo 2 – pack house packing line in operations

3.1.2. OPPORTUNITIES FOR FY 2016 THN INTERVENTIONS IN GHANA

The final assessments of intervention results in Ghana and other countries are still ongoing by the consultants appointed in collaboration with the MVCSSs. However, the THN interventions completed and planned in Ghana focused specifically on training, and were an entry point to establish links with a selected number of associations and enterprises in Ghana. While consolidating the activities already implemented, it is important to expand THN interventions in order to support the value chain with broader objectives, diversified activities, a much larger range of players, and a more sustainable impact by THN in the long term. This will require building up business models involving a larger number of associations, giving more emphasis on collaborating with individual high impact enterprises, and finally facilitating value chain associations to enhance their capacity to better serve the members. Considering the specific characteristics in the Mango VC in Ghana, the THN interventions in FY 16 should consider the following:

- I) Continue to focus on production of quality mangoes for exports, processing and sales to the local market. This will need to promote more farmer-level training, harvesting, pack houses, bulking centers, and quality control labs
- II) Promote high quality, certified, fresh mangoes for export – This will require supporting associations to provide services to members in efforts to obtain certifications, such as Global Gap and HACCP, and to meet other international standards specifically for processing
- III) Promote Ghana by offering high value processed products for export. This approach will require linking processors with producers through lead firms and promote products in international markets
- IV) Ghana mango sector associations are increasingly becoming representative bodies of large numbers of producers. These associations need to be further strengthened through logistics and capacity building support

In this context, the Table 3 captures some of the key THN interventions recommended to consider under the FY 2016.

Table3. New interventions suggested for supporting mango VC in Ghanaian 2015-2016

| No | Business model /main area | Development Partner | Activity | Results expected | Remarks |
|----|--|---|---|--|---|
| 1 | Certifications for quality of mangoes through member associations and next steps of training | YKMFE and DWMAF 70 to 80 farmers entering global gap in 2016 | Global gap and other certifications training | Two associations exceed 100 farmers certified for export production of 30,000MT | 10% exports – value at \$2.1Mn US + 80% local sales at \$400=\$9.6 |
| 2 | Quality improvement of supply sources for processors with lead firms | HPW and BORMATS | Farmer trainings Planned to start in Sept.2015, and Jan. &May 2016 | Average of 2500MT of production | Value Farm-gate US\$1.MN |
| 3 | Exporter –Famer linked Export production improvement business model | Evelyn Enterprises Contact : Bassm G. Aoum | Exporter/Buyer directly involved in training of farmers, harvesting, selection, grading, washing and packing of mangoes in the farm. THN trainer teaches mango Best practices | Supply of 500 to 600 MT of quality Mangoes - Linking 15 selected farmers from areas of Dodowa, Somanya and Brong-Ahafo regions. | -30 % exports ,180 MT@ \$126 /MT= US \$126,000 -70% processing and local market 420 MT at \$400/MT = \$168,000 -Total income generated =US\$294,000 |
| 4 | Increase and diversify exports of local and regional markets for processed and fresh mangoes | 1.Processing companies 2.Exporters 3. Pack house 4. Lead farmers | Promote exports through: trade fair participation, quality control lab facilities, transport/packing systems, and study tours | Values to estimate | Values to estimate |

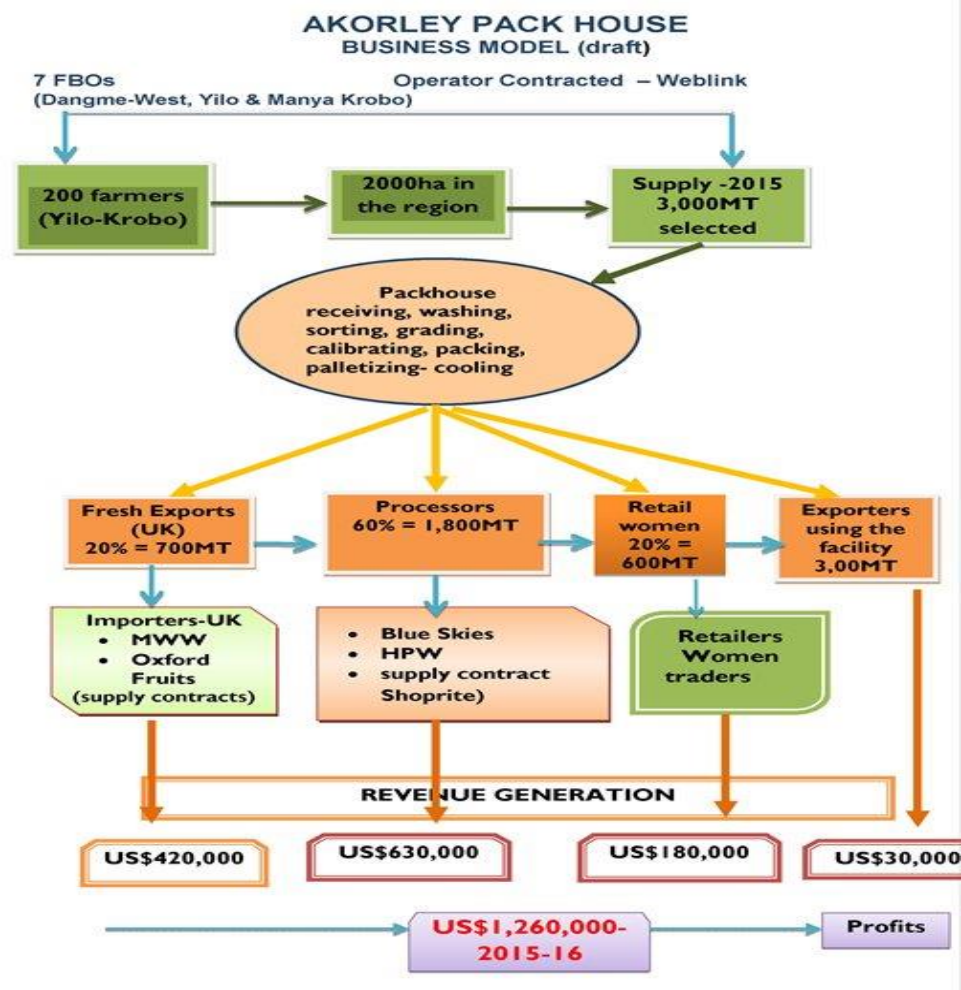
| No | Business model /main area | Development Partner | Activity | Results expected | Remarks |
|----|---|--|---|--|--|
| 5 | Full operation of pack house in Akorley and increased capacity of packing for exports | -Improved transport system (use of crates as pilot demonstrations and training) -Quality control lab facility -Automatic controls with improved software to control packing system - HACCP and ISO 22000 certification -Training on handling by women retail dealers | -Akorley pack house -exporters - Retailers association -Local processing companies | 2000.+ MT of mangoes processed for exports -Purchases by local processors -Sales to local retail markets | -\$1.4 MN in exports -Local processors & purchases of retailers to be estimated |
| 6 | Support to establish pilot bulking /collecting centers | Start with PAMPEG, possible extension to YKMFE and DWMAF | Farmer associations, exporters , local buyers | One stop center for buyers | 500 MT/ \$200,000 value 1 st year to start |
| 8 | Association capacity building – running associations as a business | YKMFE, DWMAF and others selected | - Support to develop SDPs - Support associations for record keeping of data and for information dissemination through logistics and training | Organized and responsible farmer associations | Main source of systematic data collection |
| 9 | Mango day – of the year -2016 | Associations and lead enterprises/stakeholders | Organizational support | -Promotion of markets - Assessment of results for 2015 & prospects for 2016 | Jan-Feb 2016 |
| 10 | New LOCs to be signed | PAMPEG and collaborating lead enterprises | Formalizing engagements for interventions with partner organizations | Promotion of trade in the Mango VC | Impact to be assessed by each case of interventions |

3.1.3. NEW BUSINESS MODELS PROPOSED FOR 2016 WORK PLAN IN GHANA - ADDITIONAL DETAILS

Among the key interventions recommended for FY16 in Senegal, the following propositions are specifically supported for their innovative character that can be replicated and have a high impact on the increase of trade, in terms of exports and local markets.

- I) **Mango quality Certifications implemented through member associations:** The mango farmers associations in the Somanya area have been encouraging their member farmers to access global gaps in order to link the farmers to exporters. They were depending more on local processors in the past. Linking them to Global Gap certifications is a big step forward in having farmers understand the importance of quality improvement. Through THN support, the associations in this region can exceed 100 farmers achieving Global Gap international standards and becoming export suppliers. This is the next step of training, which was already provided by THN in 2015, and the same farmers can access this upgrading process through certifications. The success of these 100 can be an incentive for other farmers to join the process and improve standards.
- II) **Quality improvement of the supply sources of processors with lead firms:** In Ghana, BOMARTS and HPW are two of three lead firms of the value added processing industry. They have several hundreds of farmers supplying mangoes from throughout the mango producing areas. The business model is to promote farmers, particularly small and medium farmers, to link up through extension services provided by the lead firms. This model guarantees the purchases from farmers whom they support through training, input supplies and agriculture advice. THN supported training programs are an encouragement for lead firms to promote these services to farmers so that farmers can improve the quality of their products and sell a portion of their products for export as a result of quality improvements. Also, because of improved quality, farmers can obtain better prices from processors for second-grade mangoes that go out for processing.
- III) **Exporter-farmer-linked export production improvement business model:** Evelyn Enterprises is a lead exporter in Ghana willing to work with selected farmers that supply high quality mangoes, based on a supply contract agreement. The business model, similar to the processing enterprises mentioned previously, will first, with THN assistance, mobilize a team of trainers to train farmers on best practices of farm management. Secondly, maintaining the quality of fruits, harvesting, sorting and grading for exports will be done by an Evelyn Enterprise team in the field. Once the export-quality mangoes are purchased, the farmer is free to sell the second-grade mangoes to processors and local markets.
- IV) **Full operation of pack house in Akorley and increased capacity of packing for exports:** With the support of THN, the Akorley pack house carried out its first commercial operations, on a limited scale, in 2015. The next step is to make this pack house and a key service center of packing for exporters -supplying quality-grade mangoes for processors and retailers. If this unit can be converted to a fully operational pack house of international standards, it can have a direct impact on increased exports, and on local market sales. However, the center to operate this expected model needs improvements in terms of facilities, for quality, computerization of packing operations, improved services to suppliers, and direct links with farmer suppliers, as well as access to finance and training. The THN support is sought to accomplish these improvements in 2016.

Diagram I. Draft of Akorley pack house Business model initially designed (Quantities to be packed and value estimates are to be updated)



- V) **Support to establish pilot bulking/collecting centers:** The mango production farms are distributed in large areas in a scattered manner in the countries of the region. Producers either wait until the buyers visit individual farms or they transport mangoes on their own without proper and safe systems of transport packaging, which increases the risks of getting lower prices. This system also encourages high post-harvest losses. Therefore, installing collecting and bulking centers managed by the private sector. This is possible business model of establishing centers where producers and buyers can meet and do transactions beneficial to both parties. A bulking center is a place where producers bring the products on a date of the week that has been agreed upon. The mangoes supplied are harvested per the quality standards established, and generally suppliers are members of the center and are paying membership subscriptions. The mangoes in bulk brought to the center are sorted, washed, and graded, and are sold at wholesale prices. This is a one-stop center for buyers, who can reduce their costs, and also for producers, who can reduce the costs of transport and get a higher price for graded products. In case of Ghana, establishing a model collecting/bulking center can demonstrate its ability to replicate in different production regions. The lead enterprises, such as Evelyn Enterprise, work with the association PAMPEG to sponsor and initiate other associations in Somanya as well. This will be a model established on a cost-sharing basis managed by the private sector, and it offers services to a large number of players of the VC.

VI) Association capacity strengthening: In Ghana, the representative organizations of mango farmers are working separately with large numbers of members that are recognized organizations. These organizations represent several hundreds of members, and provide them some services as well. Some associations have office space of their own, but still lack technical skills, management capacities, and strategic approaches to running associations as a business, in efforts to service the members effectively. However, these associations are the effective reaching mechanisms of a large number of beneficiaries, as in all the other countries. Therefore, some assistance carefully designed to develop their own strategic development plans (SDPs), provide basic logistic support (maintaining records and communications), and prepare them to generate a sustainable income could make an impact on the support by THN to the overall value chain in the country. This work can be started with three or four associations (such as YKMFE, DWMAF, and PAMPEG) where THN is already collaborating to implement trainings at present.

3.2. BURKINA FASO: THN PRIORITY INTERVENTIONS IN 2015 AND RECOMMENDATIONS FOR FY 2016

3.2.1. STATUS AND RESULTS OF CURRENT YEAR ASSESSMENT OF THN INTERVENTIONS IN BURKINA FASO

The interventions prioritized for the current mango season in Burkina Faso are as follows:

- I) Support the inter-professional association APROMA-B to train small and medium farmers on agricultural harvesting best practices in seven zones in the mango producing areas. This program was able to train 210 farmers.
- II) Support the exporters association APEMAB to train harvesters in order to increase the supply of mangoes for export. A leading pack house Ranch de Koba in Bobo Dioulasso was associated in this training program and has trained 59 harvesters through the Association of Harvesters. The French organization Rhône Alps, working with Haut Basin region local administrative authority, co-funded this training.
- III) Support the processing enterprise DAFANI to train 200 harvesters to help small subsistence farmers increase quality production. These small subsistence farmers comprise the bulk of all farmers in the country.
- IV) The planned activity to support key exporter-processor company Sanle Secharge to establish a collecting, bulking, and packing center in the Banfora region is rescheduled for 2016. The required proposal documents are being prepared by the enterprise in collaboration with THN MVCS in Bobo Dioulasso.



Burkina Faso – THN supported harvesters training with APEMAB and lead enterprise Ranch de Koba –July 2015–Bobo Dioulasso

Table 4 below summarizes the details of four THN supported interventions in Burkina Faso.

Table 4. Activities implemented and results estimated for the year 2015

| No | Business model | Partner organization | Results in terms of capacity Building | Production for exports and local trade | Value estimated (data to be reviewed) |
|-----------------------------------|---|-------------------------------|---|--|---|
| 1 | Processor-supplier-producer linkages to increase quality of supply through training of harvesters | DAFANI | 200 harvesters trained in 110 Locations in July 2015 (200 new employment opportunities) | Production of 7920 MT estimated in the 8 locations | Estimated Value of production US \$0.55Mn |
| 2 | Association-led training of farmer trainers on updated best practices of plantation maintenance, fighting against fruit flies, and harvesting techniques | APROMA-B | 30 farmers in 7 localities, a total of 210 farmers | 1000 to 2000MT | US \$400,000 to \$800,000 |
| 3 | Exporters Association and export packaging lead enterprise linked suppliers to exporters | APEMAB with Ranche de Koba | Training of 59 harvester trainers | 750 MT for exports | US \$300,000 + local sales |
| 4 | Letters of collaboration –LOCs | APPROMA B, APEMAB | Collaboration with partner organization | Signed | LOC with DAFANI |
| Pending programs 2015/2016 | | | | | |
| 1 | DAFANI processor-supplier-producer linkages to increase quality of supply through training of harvesters | Training of harvesters | Another 180 planned in April 2016 | Production of 6440 MT estimated in the 8 locations | Estimated value of production US\$ 0.45 Mn. |
| 2 | Support to establish a collecting and bulking center with pack house facilities in the region of Banfora for member suppliers - 600 to 650 members with 60 groups | Sanle Sechage and Exports Co. | One-stop collecting center for buyers. Model to develop in stages : bulking, cold storage, and packaging center | Proposal for 2016 | |

3.2.2. OPPORTUNITIES RECOMMENDED FOR 2016 THN INTERVENTIONS IN BURKINA FASO

The THN interventions completed and planned in Burkina Faso focused specifically on training to promote quality production and harvesting techniques in order to provide supplies to exporters and processors. These interventions were also designed to respond to an urgent need expressed by a few stakeholders, as well as establish an entry point to work with a selected number of associations and enterprises in Burkina Faso. While consolidating the activities implemented in 2015, it is important to review the approach of THN interventions, taking into consideration the specific characteristics currently emerging in Burkina Faso, which are principally as follow:

- I) Burkina Faso continues to be a source of fresh exports to Europe, using mainly overland routes through Mali, Mauritania, Morocco, and Spain. Therefore, the support to produce quality mangoes should continue while supporting the increased efficiency of pack houses, the creation of bulking houses, and implementation of and improved harvesting techniques.
- II) The region of Haut Basin in Burkina Faso is emerging as a highly concentrated mango drying center for exports. There are more 60 drying enterprises formally known and also some of the enterprises in the region are in the process of establishing subcontracts with investors in other countries to dry mangoes for export particularly in Mali, Guinea and Guinea Bissau. Therefore, support to improve mango drying activity in Burkina Faso will have a high impact on the increased trade of value added mangoes in the future from this region.
- III) Burkina Faso is emerging also as a supply source of mangoes within the region – specifically to Ghana - for processing. It is also a source of fresh fruit to Niger and other neighboring countries. Therefore, promoting the regional trade of mangoes from Burkina Faso is an important strategy to be maintained in the future.
- IV) The region of Haut Basin, centered in Bobo Dioulasso, is an important mango production cluster developing in Burkina Faso with links to the countries across the border. This region hosts thousands of mango farmers, more than 60 organized mango drying factories, and a large number of mango exporters. The region produces several mango varieties. Mango-related activities represent a major economic activity and a key livelihood option of the population in the region. The infrastructure facilities available such as roads and electricity have close links to the mango value chain activities in this region. The mangoes from this region are exported through connected roads and trade corridors to Mali, Mauritania, Morocco, Ghana, Europe, and others. All of the characteristics in the region related to the mango sector demonstrate the potential to develop a high impact mango cluster in this region of Haut Basin connected with the border countries. Suggestions for supporting a mango cluster in this mango producing zone have been made by a number of different stakeholders and organizations. Therefore, it is important that all interventions in the mango value chain in this region focus on mobilizing a large range of public and private partners. professional analysis of the mango cluster in this region will produce guidelines and options for new interventions by the stakeholders, housing potential to convert the region into a high impact mango production and trade zone in the west Africa Region. This is an activity to be carried out in 2016.

Based on the above specific characteristics identified in Burkina Faso, the business models that THN could consider to support are listed as follows in **Table 5** for FY 16.

Table 5. New interventions suggested for supporting Mango Value chain and its trade in 2015-2016

| No | Business model /main area | Development Partner/s | Activity | Results expected | Remarks |
|----|--|---|--|--|--|
| 1 | Certifications for quality of mango production, through member associations for exports as well as local and regional markets, in next steps of training | APROMAB, APEMAB, PETRAMAB, and TA support from PAFASPE, CIR (SNV) | Global Gap, organic certification training, HACCP | Numbers of farmers and processors to be worked out | Numbers of beneficiaries to be agreed upon with the associations in 2016 |
| 2 | Enhance mango drying industry model based on lead and sub-contracting enterprises | GEBANA Afrique Co. linked with 30small mango drying units CIR – SNV | Training of Drying units managers and technicians, certification of HACCEP | 30,000 MT of fresh mangoes. Production about 5000MT @ \$6000/MT of dry mangoes | US \$30Million value estimated |
| 3 | Support to introduce waste management techniques for mango drying in the region to address environmental issues | Work with lead enterprises and APEMAB | Engagement of specialized consultant | Reduction of losses , quality improvement of drying units | Impact to be worked out |
| 4 | Production of organic mangoes for drying | Suppliers to GEBANA Co. For export processing | Training on best practices on organic farming of mangoes | Targeting 2 to 3 MT | High value product for exports |
| 5 | Support to promote high quality mango seedlings of varieties in demand - certified nurseries | APROMA B | Training on best Practices | Local and exports to the regions | Value to be estimated |
| 6 | DAFANI processor – producer linkages to increase quality through training of harvesters | Training of harvesters | Another 160 planned in April 2016 | Production of 6,440 MT estimated in the 8 locations | Estimated Value of US 0.45 MN |
| 7 | Increase efficiency of mango drying technology in Bobo Area | Enterprises Rose d'Elart –Mali mango dryer (cost Sharing with PAFESPE) - and Gebana enterprise– steam-powered dryer | Introduction of improved tunnel dryer made in Mali and, support to develop steam-powered dryer | Increased efficiency of cost of production using innovative activities grants | To be estimated |

| No | Business model /main area | Development Partner | Activity | Results expected | Remarks |
|----|---|---|---|--|---|
| 8 | Support to establish a collecting/bulking center with pack house facilities in the region of Banfora for member suppliers - 600 to 650 members with 60 groups | Sanle Schage and Exports Co. | One-stop collecting center for buyers Model to develop in stages: bulking, cold storage, and packaging | Proposal for 2016 | Proposal to be finalized by MVCS in Burkina Faso |
| 9 | Development of Haut Basin Region in Burkina Faso as mango trade development Cluster - | Collaboration with Rhône Alps Coopération, Conseil régionale de Haute Basin | Mission to study and define prospects and possible interventions of THN | Birth of an organized mango cluster in West Africa | Impact on exports, regional trade, and local trade |
| 10 | Support to associations for export and regional trade promotion | Associations – APPROMAB, APEMAB, PETRAMAB, lead enterprises | Organizational support to Mango Day Participation in trade fairs: Fruit Logistica in Germany and Dubai, and the Fancy Food Fair in the USA | Promotion of local and export markets Assessment of results for 2015 and prospects for 2016 | 2015/2016 programs |
| 11 | LOCs for future | GEBENA Enterprise Rose d'Eclat Co, Sanle Séchage, Conseille Régional, Haut Basin and Coopération, Rhône Alpes, CIR, PAFESPE, PETRAMAB | Collaboration for future programs | Impact and results of planned activities | Impact to be established by each program/intervention |

3.2.3. BUSINESS MODELS PROPOSED FOR 2016 IN BURKINA FASO - ADDITIONAL DETAILS

Key interventions recommended for FY16 in Burkina Faso are also identified as replicable business models to be promoted on the same lines as Senegal and Ghana. These are considered as innovative models that can be replicated and will have a high impact on increased trade in terms of exports and local markets. Some further details of these proposed are given below.

- I) **Certifications for quality of mangoes production through member associations:** The Burkina Faso mango value chain demonstrates an example of an inter-professional organization of actors, which is known as APPROMA-B, consisting of the associations PETRAMAB and APEMAB. These associations form an umbrella network of all the players of the VC, and also will serve as their main reaching mechanisms ,as they are able to channel technical assistance to members in order to obtain access to international standards. The associations, with the help of THN and other TA projects, could sponsor members to access Global Gap, HACCP, Fair-trade and other international standards that increase the value of the products both in exports and regional markets. This is a next step of training already provided by THN in 2015 that can include the same farmers and enterprises upgrading through certifications. In case of Burkina Faso, CIR, SNV and PAFESPE and other TA projects could be partners with THN in this activity. The CIR has already expressed interest to partner with THN to implement HACCCP training for processors.
- II) **Enhance mango drying industry model based on lead and sub-contracting enterprises,** Burkina Faso demonstrates an interesting model of subcontracting mango drying to 30 other small drying units domestically, as well as to a few units in other countries of the region. The lead enterprise in Burkina Faso's drying industry is Gebana Afrique, which accounts for processing 30MT of mangoes into dried mangoes for export. This enterprise has begun, in addition to other innovative activities, to add value to the industry such as:
 - a. Introduction of a system of incentives – loans, advice, working capital to sub-contracting units, and guaranteed the buyback of the final products. Working with lead enterprises to train all the management and technical staff of subcontractors will increase the quality and value of the final product substantially ,
 - b. The enterprise is interested in working and supporting the management of mango waste for processing units. Disposal of mango waste in drying units is a serious environmental issue that needs to be addressed, and, if done properly, can enhance the value of the industry. Therefore, the initiative of Gebana Enterprise to find solutions for factory waste disposal merits support.
 - c. Gebana, as a lead firm, is working to break in to the organic mango products market. Support to mango farmers supplying Gebana and other subcontracted units to produce certified organic product is an opportunity to increase the value of trade of the mango VC. This will require the facilitation of training for mango farmers and processors in organic mango production for export.
- III) **Promotion of certified mango seedlings nurseries:** the mango value chain players in Senegal express fears of witnessing the mango plantations becoming old and less productive in the near future if there is no replacement system introduced. Burkina Faso offers the advantage of having a large variety of mangoes of commercial value, which are in demand for export, processing and local

markets. Supporting the start or expansion of certified mango seedling nurseries is a high value production initiative in Burkina Faso. High quality mango seedlings of different varieties will have a market in the country as well as in the regional market.

- IV) **Processor-supplier-producer linkages to increase quality of harvested mangoes for processing:** the initiative implemented in 2015 to train harvesters through DAFANI and Ranch De Koba in Burkina Faso, with the assistance of THN, is a high impact initiative replicable in the region. The DAFANI enterprises confirmed that, after this training, they have observed a net increase of mangoes supplied for processing, and it has also reduced 50% of factory supply losses. The Ranch De Koba and APEMAB-supported harvesters association training is expected to have a net impact on export supplies of quality mangoes, in addition to training of harvesters in an initiative that creates seasonal employment for youth. This is an activity that needs to be continued in collaboration with lead buyers and associations.

- V) **Increase efficiency and options of mango drying technology in Bobo Area.** A large number of mango drying units use a technology known as “Atesta,” which has its own limitations in terms of quality, quantity, and costs of production. A few units have invested in importing more modern dryers known as “tunnel dryers” from South Africa, which have a relatively high cost compared to other available technology. Therefore, some drying units in the region are now interested in adapting an alternative, less costly technology developed at a center in Sikaso, Mali, which uses the same concept as tunnel dryers. This dryer appears to be effective and one enterprise—Rose D'Eclart, in Ouagadougou- is planning to introduce it on a trial basis. They also estimate that, with this technology, they could produce a more competitive product for exports. The technical assistance project operating in Burkina Faso – PAFESPE - has agreed to co-fund this initiative and is seeking additional funding from grants to introduce the Mali-fabricated dryer to the mango drying industry in Burkina Faso. This is an opportunity that THN should consider, because the successful use of the Mali tunnel dryers by the enterprise Rose d'Elart could be a positive replicable demonstration for other traditional drying units to adopt and eventually increase production efficiency and cost-competitiveness in the dried mango market place.



Mango drying unit Enterprise Rose d'Eclart – Burkina Faso

- VI) **Support to establish a collecting center with pack house facilities in the region of Banfora;** this activity was planned for 2015 and is recommended to be continued in 2016. This is an initiative by Sanle Sechage Enterprise, a processor and exporter of mangoes. The enterprise intends to facilitate its fresh mango suppliers – between 600 to 650 members among 60 groups in the Banfora region - to sell quality mangoes to exporters and processors. Sanle Sechage itself will be a main buyer and it will also provide services, such as training on best farm management and harvesting practices, to member suppliers. There are no collection systems at present in the region. Many producers harvest mangoes without any proper training and often the harvested mangoes are seen stocked at the road side, awaiting buyers. Consequently, the quality of supplies is not assured. Host harvest losses are high and losses of income for producers are reportedly high in mango production. The establishment of a collecting center is a solution to address this situation in the region and the experience of establishing this center could be replicated by other investors. The

MVCS of the THN in Burkina Faso is assisting Sanle Sechage to complete the proposal. Investments for this are expected to be on a cost-sharing basis between Senle Sechage, and formal bank loans and grants from TA projects.



Roadside collection for bulk sales of mangoes and inappropriate transport system - Banfora region –Burkina Faso- photo in July 2015 - need for a proper collecting and bulking center

VII) **Development of Haut Basin Region in Burkina Faso as a mango trade development**

Cluster: details to justify this proposal are given in the previous section. The Collaboration of the French NGO Rhone Alps and Conseille Regional of Haut Basin in Burkina Faso is interested in this concept and have initiated some studies in this direction. The purpose of this activity is to promote a professional cluster study to guide and provide advice to encourage and attract a broadly based partnership composed of public and private sectors stakeholders, players and donor communities to promote this project.

3.3. **SENEGAL: THN PRIORITY INTERVENTIONS RECOMMENDED FORTHE2015 SEASON**

3.3.1. **RESULTS ACHIEVED IN 2015 THROUGH THN INTERVENTIONS IN SENEGAL**

During the MVCA's previous mission in March – April 2015, the MVCA identified a range of opportunities to promote the mango value chain in Senegal. Due to limited time available for the season, the main activity recommended for immediate implementation was:

- The training of 51 lead farmer-trainers and representatives of exporters through the exporter associations, CFAHS and DPV, on best agricultural practices and harvesting techniques. The program was conducted in two zones initially. The value of the impact on trade of this program is yet to be estimated.
- The Specific results of the Senegal training were associated with the training of representatives of exporting firms. Annex 4 presents a table listing persons trained through THN interventions, with the details of representative enterprises.

In addition, THN initiated market linkage facilitation to promote supplies to processors and exporters since the mission implementation in March and April 2015. The status of these activities is as follows:

- THN connected the newly built Senegalese Agro-fruit Company – a subsidiary of the KIREN company –to several potential mango suppliers. Agro-fruit Company is planning to set up a mango processing plant. This company is now in operation since August 12 2015, and it has a capacity of processing 10,000MT of fresh mangos for pulp annually. THN-introduced suppliers have started supplying fresh mangos to this company. The company will sell part of its production of pulp to its mother company, KIREN, and plans to export the pulp in the future.
- THN was interested in supporting SAFINA – a Senegalese mango exporter– to promote the export of mangoes to Lebanon. In this connection, the enterprise SAFIA required Phytosanitary clearance of the mango supply from Lebanon’s Département de Protection Végétaux (DPV), in order to export to Lebanon. To obtain this clearance, Lebanese representatives are required to visit the supply source on invitation from the Senegalese Government. The THN followed up this matter with Senegal’s DPV. The GVCC is following this activity with Senegal’s DPV and export promotion agency, ASEPEX. This activity is still pending.



THN supported Training of Mango farmers in Senegal – harvesting techniques training and the use of traps to control for fruits flies, July 2015

A summary of the current status of interventions by THN is captured in table 6 below

Table 6.) Activities implemented and results estimated for the year 2015 –Senegal

| No | Business model | Partner organization | Results in terms of capacity Building | Production for exports and local trade | Value estimated |
|----|--|---------------------------|---|---|---------------------------|
| 1 | Training of farmer-trainers on best practices of farm maintenance, fighting against fruit flies, and harvesting techniques | CFHAS and DPV Senegal | 51 farmers and representatives from exporting companies in 2 localities | 1800 to 2000 MT | The estimates are pending |
| 2 | Facilitation of linkages between suppliers and Processors | Agro Fruits processing Co | Contacts established with suppliers: Distribution Plus, Laure Agro, COPROFEL , BurSine Co, CADA Co. | 500MT this season from one supplier confirmed | US\$130,000 |

| Pending programs 2015/2016-Senegal | | | | | |
|------------------------------------|--|--------------------|---|---------------|------------------------|
| 1 | Facilitation of exporting fresh mangoes to Lebanon | SAFINA Enterprises | Contacts with DPV for facilitation of a delegation from DPV Lebanon to inspect Phytosanitary conditions of supplying sources in Senegal | Visit pending | Results to be assessed |
| 2 | LOC | CFHAS /DPV | Signatures pending | | |

3.3.2. OPPORTUNITIES RECOMMENDED FORTHN INTERVENTIONS FOR 2016 IN SENEGAL

THN interventions implemented in Senegal were specifically on training to promote quality production and harvesting techniques focused on supplies to exporters. The number of interventions in Senegal in 2015 was limited due to late planning of activities approaching the mango season.

The mango value chain, as an economic activity, is increasingly becoming a high-impact agricultural subsector in Senegal. A large number of producers are distributed into three large production zones. The zone exports more than 15,000MT of high quality grade mangoes. There are large-scale commercial mango plantations in addition to large numbers of medium and small producers. The specific characteristics of the mango value chain in Senegal are:

- It specializes in high quality fresh mango exports to EU countries, the Middle East, and North Africa
- It has a long history of controlling fruit flies and implementing phytosanitary requirements in the mango value chain
- It has competitive advantages in terms of longer production seasons and lower transport costs by sea to Europe
- It is also a supplier of fresh mangoes to regional markets, particularly in Ghana for processing
- It has large number of professional exporting companies
- It has a large expanding local retail market of mangoes, employing large numbers of women and youth
- It has the largest mango pulping facility in West Africa, beginning operations in August 2015

The above specific characteristics of the mango value chain in Senegal confirm the high potential of the mango trade at local, international, and regional markets. Therefore, the future THN interventions should continue and consolidate the activities of training implemented in 2015, while expanding the implementation of a series of diversified, sustainable business models, in order to promote the mango VC. Some of the characteristics identified as priorities are listed in the table 7 below.

Table 7.) New interventions suggested for supporting the mango value chain and its trade-in 2015-2016 –Senegal

| No | Business model /main area | Development Partner | Activity | Results expected | Remarks |
|----|---|---|---|---|--|
| 1 | Certifications for quality of mangoes, through member associations for exports, in next steps of training | Associations | Global Gap, organic certification training | Numbers of farmers and processors to be worked out | Numbers to be assessed Minimum of one program |
| 2 | Follow up on training of best practices in Niayes | CFHAS and DPV, possible collaboration with CIR | Review the performance and application of 51 persons trained | Results to be updated | To be followed up by MVCA-S |
| 3 | Facilitate training on best practices of contact farm supplies by exporters and suppliers of mangoes to processor | CADA, Distribution Plus, Master co, collaboration with Agro Fruits, Hortica Sénégal COOPROFEL in Niayes, Les saveurs de Sud (Casamance) | Specific focus on supplies to processor –Agro Fruits- and exports of fresh mangoes | 2000 to 3000MT of supplies to Agro Fruits | US\$ 500,000 to \$ 750,000 |
| 4 | Facilitate supply linkages between the commune of Diass and the processor | Commune Diass in Niayes, Agro Fruits, and Hortica Senegal | Training on best practices , phytosanitary controls of supplies | Details to be worked out | Impact to be assessed through a detailed analysis by MVCS in Senegal |
| 5 | Promotion of certified mango seedling nurseries | Associations | Training on best Practices | Local market and for exports to the West African regions 10 to 15 trainers | Value to be estimated |
| 5 | Formalized retail trade of quality mangoes in urban Markets in Senegal | Initiative by educated youth to promote quality products in retail market by SenFresh MVCS –S provided advice | Formalizing the enterprise, training the youth on best practices of handling mangoes, as well as phytosanitary controls | 300 to 400 MT per season | US \$180,000 to \$240,000perseason turnover |

| | | | | | |
|--|--|---------------------------|--|--|--|
| | | on fruit flies control | | | |
|--|--|---------------------------|--|--|--|

| No | Business model /main area | Development Partner | Activity | Results expected | Remarks |
|----|--|--|--|--|---|
| 7 | Support to establish a collecting and bulking center with pack house facilities in the region for member suppliers | COPOFRAL at Keur Mbir Ndao –Niayes joint assistance with Japanese collaboration | One-stop collecting center for buyers Model to develop in stages – bulking, cold storage, and packaging center | 500 farmers to benefit Production of 6000 MT | US\$900,000 to \$1,000,000 |
| 9. | Support to establish a mango drying unit with private sector | Work with CADA and linkages with Burkina Faso industries | New investments to be promoted using modern drying technology | Use of second-grade mangoes for value added products | Possible processing of 500 MT of fresh mangoes initially Discussions ongoing |
| 10 | Support to associations for export and regional trade promotion | CFHAS, ASEPEX | Organizational support to Mango Day, Participation of trade fairs – Fruit Logistica in Germany and Dubai, and the Fancy Food Fair in the USA | Promotion of local and export markets Assessment of results for 2015 and prospects for 2016 | 2015/2016 |
| 11 | New LOCs to sign | COOPROFEL CIR, Agro fruits Co. Lead enterprises going for contract farming supplies, SenFresh, | New business models to be developed and implemented in 2016 | Results to be assessed by each case. | |

3.3.3. NEW BUSINESS MODELS FOR 2016 –THE MANGO VALUE CHAIN IN SENEGAL- ADDITIONAL DETAILS

The key interventions recommended for FY16 in Senegal are specifically identified for its innovative character that can be replicated and that will have a high impact on increased trade in terms of exports and local markets. These include:

I) **Certifications for quality of mangoes – through member associations for exports - next steps of training**

In Senegal, numbers of commercial farms are concentrating on supplying fresh mangoes to exporters and the non-exportable quality mangoes are sold to retail dealers. Consequently, there is an increasing

numbers of producers are applying for certifications - mainly for Global Gap and some for organic and other international standards certifications. Therefore, supporting the access to certifications, preferably through associations, could primarily impact the increase of exports. Secondly, it can be carried out as an activity by THN as programs to strengthen associations providing services to members. Some of the large farms and packaging houses have certifications of producers, mainly through GlobalGap, which plays a vital role. This approach can result in the increasing value of exports.

II) Facilitate training on best practices of contact farm supplies by exporters and suppliers of mangoes to processor

There is an increasing interest by exporters and also by the potential suppliers of mangoes of processing mango pulp to develop contract farming through the newly built AgroFruits company. The lead enterprises such as CADA, Distribution Plus, Master, and others already in contact with THN have expressed the willingness to establish contacts for supplies with smaller farmers to supply quality mangoes at adequate quantities and at acceptable prices. To achieve this objective, the lead farmers are willing to facilitate access to training on best practices of production management and phytosanitary controls in exchange for the guarantee of buyback of their quality production. This is another model of contract farming, or out-grower systems, that THN can support in Senegal as a sustainable and replicable model.

III) Facilitate linkages with the commune for supplies of mangoes and labor to the processor

Commencement of the operations of one of the largest mango pulp making factories in Senegal in 2015, Agro Fruits spurred a large investment that will create a market for large quantities of non-exportable fresh mangoes. This factory is located in the outskirts of Dakar in the commune of Diass in the Niayes region. The location of a USAID supported model pack house of Mangoes, Hortica, is also located in the proximity of this commune. The commune could be now developed as a source of supplying labor for both of these two lead firms related to mango the industry and, in addition, the farmers of the commune could be encouraged to supply high quality mangoes to both the lead companies and to the retail market. In this context, both lead firms are interested in supporting the commune to develop a mango industry-related cluster with the assistance of THN. This is a model that needs to be conceptualized and developed with the help of THN experts and the two lead enterprises.



New mango pulp making facility –Agro Fruits- in the Senegal Commune of Diass

IV) Promotion of certified mango seedling nurseries

In Senegal, mango plantations are becoming old and less productive. Several value chain players expressed the need to promote the production of high quality and certified mango seedlings of Kent and Keit, and other varieties in demand. Supporting certified mango seedling nurseries is an urgent requirement of the mango value chain in Senegal.

V) Formalized retail trade of quality mangoes in urban markets in Senegal

Traditionally, the retail market is dominated by women fruit and vegetable dealers of Guinean origin. This is a high volume market in Senegal and very little attention is paid to quality phytosanitary controls in retail markets. In most cases, mangoes are sold at the road side or by mobile vendors, and attract fruit flies due to their over-exposure. Additionally, in many small holder production units, large

quantities of mangoes are wasted in the fields without being purchased. Realizing this situation, an educated group of three youths have initiated a unique system of buying and transporting the second-grade mangoes from the Niayes region to be introduced through specifically attractive outlets in Dakar. The youths initiated this enterprise initially through buying the non-exportable quality mangoes from an exporting company, CADA, and from the farmers of the Noto region in Niayes. The mangoes are transported to a store in Dakar, cleaned, sorted and packaged into boxes that are specifically designed and printed, and are then sold at 350 FCFA per KG. In July, they were selling at a rate of 1 MT per day and were planning to increase that amount up to two MTs per day. This turnover can account to a volume of more than 100MT per season in the Dakar market at a value exceeding \$70,000. The group envisions promoting the quality mangoes for sale in retail through super markets chains, and they also plan to get supplies from Casamance and other production areas in the future. This retail sales model can be further developed and formalized, as well as add value as a unique replicable model to other countries in the region. The THN MVCS in Senegal needs to work with this youth group, and the MVCS could assist them to enhance the business, which can revolutionize the mango retail market in Senegal.



New retailing outlets of quality mangoes in Senegal, SenFresh –an initiative by young entrepreneurs



Traditional retail mango market – Exposed to fruit flies, inappropriate packing, and high rate of waste

VI) Support to establish a collecting and bulking center with pack house facilities in the region

The mango production farms are distributed in large areas in a scattered manner in the countries of the region, including Senegal. Producers wait until buyers visit individual farms, or they transport mangoes on their own without proper and safe systems of transport packaging, risking receiving lower prices for their product. This system also encourages high post-harvest losses. Therefore, installing collecting and bulking centers managed by the private sector would be an effective solution for many farmers. This is possible a business model of establishing centers where producers and buyers can meet and perform transactions beneficial to both parties. A bulking center is a place where producers bring the products on a date of the week that has been agreed upon. The mangoes supplied are harvested per the quality standards established, and generally suppliers are members of the center and are paying membership subscriptions. The mangoes in bulk brought to the center are sorted, washed, and graded, and are sold at wholesale prices. This is a one-stop center for buyers, who can reduce their costs, and also for producers, who can reduce the costs of transport and get a higher price for graded products. The COPOFRAL in Keur Mbir Ndao is in the process of negotiating a bulking and packing center to support its 500 member producers. They intend to seek support from Japanese bilateral assistance to build the center. The COPOFRAL is a cooperative able to produce more than 5000 MT of mangoes annually and it provides an opportunity for THN to support an initiative that can create sustainable business models that increase the trade of mangoes in Senegal. Additionally, there are intentions expressed to establish bulking centers in other production areas such as Casamance.

VII) Support to establish a mango drying unit with private sector

Senegal, to date, has not been able to establish a profitable mango drying industry. Nevertheless, Senegal offers a large quantity of sub-graded mangoes that cannot be exported as fresh. Some quantities of high quality second grade mangoes are exported to Ghana annually. However, losses reported in Senegal mango production remains high. The enterprise CADA – producer and an exporter of mangoes-has expressed the intention to invest in a mango drying unit. THN also attempted to link CADA with a dried mango exporter from Burkina Faso with the intention of promoting new investments and subcontracting arrangements. The outcome of these facilitations is yet to be followed up.

4. WAY FORWARD-NEXT STEPS

4.1. RECOMMENDATIONS FOR NEXT STEPS

The support of the mango value chain in the three countries at this stage by THN comprises two aspects:

- (III) Follow-up and consolidate the interventions implemented during the 2015 mango season
- (IV) Planning of interventions based on recommendations above for 2016

4.1.1. FOLLOW-UP AND CONSOLIDATE THE INTERVENTIONS IMPLEMENTED DURING THE 2015 MANGO SEASON

The activities to follow up on the interventions implemented in the three countries by the mango VC team are as follows:

- I) Update the mango value chain activity tracker regularly. The activity tracker is to be updated weekly, including 2015 activities as well as new activities placed in the 2016 work plan by all three MVCS. This will be coordinated by the MVCS in Ghana.
- II) Finalize reports by consultants. All of the training reports in the three countries are to be followed up upon by MVCS and reported by the MVCS Ghana.
- III) Detect all M& E data required for THN on the sector. This will be coordinated by the MVCS-G.
- IV) Finalize and obtain signatures of pending LOCs (MOUs) with the partners. This will be coordinated by the MVCS in each of the three countries.
- V) Identify and finalize a brief combined with a report, coordinated by the MVCS in Accra, on the summary of activities implemented, results achieved, and lessons learned.
- VI) Plan and follow-up pending activities planned for 2015:
 - a. Collecting center in Burkina Faso with Sanle Sechage, coordinated by MVCS-B
 - b. Training programs in Ghana with lead enterprises BOMARTS and HPW in the Eastern, VOLTA and Brong Ahfo regions, coordinated by MVCS-G
 - c. Follow-up of contacts of suppliers and Agro Fruits in Senegal, coordinated by MVCS-S

4.1.2. PLANNING OF INTERVENTIONS BASED ON RECOMMENDATIONS ABOVE FOR 2016.

The THN Mango value chain work plan for FY 16 is being prepared based on the opportunities identified above for three countries during this mission. Once work plans are approved, the MVCS in Ghana, in collaboration with the other team members of Burkina Faso and Senegal, should be able to:

- I) Prioritize the interventions by each country
- II) Develop proposals and concept papers for each intervention and define the roles of the partners and the THN, as well as the commitments of each
- III) Define budget requirements and finalize and agree on commitments
- IV) Finalize and sign the LOCs with partners
- V) Identify the consultants and resource persons required, and proceed with appropriate approvals
- VI) Establish a roster of resource persons and institutions
- VII) Define a final implementation plan and assign responsibilities.

4.1.3. OTHER SPECIFIC RECOMMENDATIONS

THN, under the 2016 work plan for the mango VC, plans the expansion of the activities of the mango value chain interventions to Cote D'Ivoire and Mali in addition to Ghana, Senegal and Burkina Faso. In addition, the work plan includes intervention in the cashew value chain along with the mango value chain related activities, particularly in Cote D'Ivoire. These changes and new interventions will have much broader work plans in the five countries. Several changes in terms of staff requirements and logistical support will be needed. In addition, a clear expansion of collaborating partners and institutions in the will need to be included in the implementation of the 2016 work plans. Therefore, considering these changes, the following recommendations are suggested.

- I) Review the staff requirements to implement the work plans in the two newly added countries, in addition to the capacity requirements for coordinating a larger program at the home office level in Accra. The addition of Mali and Cote D'Ivoire make four of the five countries francophone.
The responsibility to accommodate for language needs lies with GVCA and VCDA, along with THN management and J.E Austin Associates Inc.
- II) In case of Mali, the present MVCS in Burkina Faso, working for THN, has confirmed experience in mango and cashew value chains and has worked in Mali. In addition, there are close links between value chain players in the Haut Basin region in Burkina Faso and in Mali. Therefore, the MVCS in Burkina Faso could oversee the activities planned in both countries in the mango and cashew value chains. Follow-up:
Responsibility: Revision of TORS of MVCS Senegal and Burkina Faso, and extension of their contracts
Responsibility lies with GVCA and VCDA, along with the THN management, as well as J.E Austin Associates Inc. and the MVCS-G
- III) Considering the size and volumes of the mango and cashew value chains in Cote d'Ivoire, it is important to appoint a specialist, preferably bilingual, to implement and coordinate the activities reporting to GVCA in Senegal and to home the office in Accra.
Responsibility lies with GVCA and VCDA, along with THN management and J.E Austin Associates Inc.
- IV) Specific missions should be undertaken in Mali and Cote d'Ivoire as soon as possible, before 2016, to assess the status and opportunities for interventions of THN in the two value chains in relation to the work plans of FY 2016.

Responsibility: Revision of TORS of International and National STTAs: GVCA and VCDA, along with THN management and J.E Austin Associates Inc.

August 30th 2015

ANNEX I: PERSONS & INSTITUTIONS CONTACTED

| No. | Institution | Person Contacted | Contact Details |
|---------------------|--|--|--|
| Burkina Faso | | | |
| 1 | Sanle Exports (Production and processing) | Kone Yaya | sanleexportburkina@yahoo.fr , +22620 911631 |
| 2 | APROMA B , + Grace Mangoes | Jean Noel Lamoukry | lamoukry@yahoo.fr , +228 702526 41 |
| 3 | Association ATB | RosemondeToure | Rose_eclart@yahoo.fr , +226 702 49410 |
| 4 | UFTT | Ouatara Mamadou- President of processors Association | Uftt2009@yahoo.com +226 76589415 |
| 5 | SN Ranch DU Koba | Bougoum Issaka | ranckoba@yahoo.fr , Tel. +226 76606270 /70102215 |
| 6 | APROMA-B, Eben Fruits | Paul Oudrago, Président | ebenfruit@yahoo.fr , tel. +226 20995348 |
| 7 | DAFANI | Boubakar Diakité | Dafani2008yahoo.fr, TEL +226 70008236 |
| 8 | | Noufou Sankara | Dafani2008yahoo.fr TEL +226 70008236 |
| 9 | Project –PAFASP(contact By telephone) | DjenebaTapsoba Bobo= Coordinator | djeneb@gmail.com , +226 70 62 15 00 |
| 10 | MVCS - THN BOBO | Dibouloni Jean Bosco | Email. diboulonijeanbosco@yahoo.com , Tel. +226 78033905 |
| 11 | Consultant trainer | OumarouTall | Tel-702275092 , Email talloumaroul@yahoo.fr |
| 12 | Programme de Coopération décentralisée de la Rhône Alpes | Alain Bostal – Coordinateur | a.bostal@fasonet.bf , a.bostal@yahoo.fr tel. + 226 70215332 |
| 13 | Trainer | Abdul KarimNadie | Tel. 79450261 |
| 14 | Trainer Agriculture | Milligo Damian | ddamienmillogo@yahoo.fr |
| 15 | Gebana Enterprise | David Heubi | d.heubi@gebana.com Tel. +226 76617033 |
| | | | |
| Ghana | | | |
| 1 | IPM Consultant Fruit Flies Trainer | Victor Avah | Email : victoravah@yahoo.co.uk , Tel: 0244507530 |
| 2 | Sighing Farms | Pon.G. Statesman | ponsatheesan@hotmail.com |

| | | | |
|----|--|-----------------------------------|--|
| | | | +233 302412685 |
| 3 | FMSL GH LTD | Davis Korboe – | daviesjorobo@yahoo.com / davies@fmslgh.om Tel. +233- 244561122, |
| 4 | Evelyn Farms | Bassm G. Aoum | bef_farmevelyn1991@yahoo.com Tel : + 233 244375131 |
| 5 | BOMARTS FARMS | AntoneyBotchway | abotchway@bomarts.net Tel.+233244467928 |
| 6 | HPW | Mike Blaser GM | Maik.blaser@hpwag.ch |
| 7 | HPW –Tropical Dry Fruit Products | Michel Mawusime BDS Manger | Michael.mawusime@hpwag.ch Tel.+233271934059 |
| 8 | Dangme West Association of Mango Farms –DWAMF | Seth Djanmah President | Sethdjanmah@ymail.com Tel. 0209275654/0244803870 |
| 9 | DWAMF | Noah Sabutey-Finance Secretary | Noahsabl4@gmail.com tel. 0242375154 |
| 10 | YILO KROBO MANGO FARMERS CO-OPERATIVE | President –Peter Sackey | posackey@yahoo.com , 0277602546 |

Senegal

| | | | |
|---|---|----------------------------------|--|
| | | | |
| 1 | THN GVCA | Abou Fall | Email. abou_fall@watradehub.com |
| 2 | MVCS _Senegal for THN | Momodou Dabo | Email: dabokl@gmail.com |
| 3 | CFAHS- Coopérative Fédérative de L'horticulture de Sénégal | Cheik Ngane, Président | cheikhngane@yahoo.fr , cheikhngane@gmail.com TEL: +221 77 681 29 52 +221 76 580 22 23 |
| 4 | CADA – Consortium Africain pour le développement Agricole | Baba Dioum Administrator | bdioum@orange.sn tel : +221 33 825 47 35 |
| 5 | BurSine International –Exporter | Amacodou Diouf | amacodouf@hotmail.com Tel.+221 776568820, 776391171 |
| 6 | Laure Agro –Exporter in Senegal and Cote D'Ivoire | Mme Hachem Yasmine Directrice | Senegal.lauresarl@gmail.com tel. +221 774626210 |
| 7 | SenFresh- Distributors of Mangoes | Abdul Aziz | |
| | | Mohamed Diagnes | |
| | | Usman Samba | Ousmanstam6gmail.com, Tel. 771616648 |
| 8 | COOPROFEL | Amodou Diakate- President | Amodoudiakate56@gmail.com , Tel. 765948280 |

| | | | |
|----|---|--|--|
| 9 | Distribution Plus fruits & légumes du Sénégal | Amadou Moustapha Diop Vice President- SEPAS | amadoumddp@hotmail.fr Tel. +221774558651 |
| 10 | Hortica Sénégal | Charles Haddad | horticasenegal@gmail.com Tel. +221 776351095 |
| 11 | AGROFRUITS S.A | Ali Fares –General Manager | Ali.fares@agro-fruits.com Tel. +221 33 823 0500, +221 33 823 0508 |
| 12 | ASEPEX- Agence Sénégalaise de Promotion des Exportations | Ngome Ndiesse – (Agriculture , agro Industry and Fisheries) | ndngom@asepex.sn Tel. +221 776812952 Tel. 221 76 580 2223 |

ANNEX 2: MANGO VC TRAININGS IN GHANA–KEY RESULTS DATA

Annex 2, 1. Numbers trained by Institution

| NO | ASSOCIATION | NO. TRAINED (CLASSROOM) | NO. TRAINED (FIELD PRACTICALS) | MALE | FEMALE |
|----|---|----------------------------|--------------------------------------|------------|-----------|
| 1 | Dangme West Mango farmers Association | 45 | 59 | 36 | 23 |
| 2 | Yilo Krobo Mango farmers Association | 56 | 118 | 106 | 12 |
| | Sub total | 101 | 177 | 142 | 35 |
| 3 | Akorley pack house | 6 | 6 | 6 | 0 |
| | Sub total | 6 | 6 | 6 | 0 |
| | TOTAL | 107 | 183 | 148 | 35 |

Annex 2.2 YIELD STATISTICS

| N O | FARMERS ASSOCIATION | NO. OF FARMERS | AVERAGE TONNAGE BEFORE TRAINING | AVERAGE TONNAGE AFTER TRAINING |
|--------|---------------------|-------------------|---------------------------------------|--------------------------------------|
| 1 | Dangme West | 59 | 3MT | 5MT |
| 2 | Yilo Krobo | 118 | 3MT | 5.5MT |
| | TOTAL | 177 | 3MT average | 5.25MT average |

Annex 2.3. FRUIT SUPPLY STATISTICS (MT)

| | FARMERS ASSOCIATION | NO. OF FARMERS | Blue Skies (MT) | Value (GHC) | HPW (MT) | Value (GHC) | BOMARTS (MT) | Value (GHC) | Export (MT) | Value (GHC) |
|---|----------------------------|-----------------------|------------------------|--------------------|----------------------|--------------------|---------------------------|--------------------|--------------------|--------------------|
| 1 | Dangme West | 59 | 200 | 240,000 | 300 | 300,000 | 150 | 120,000 | 100 | 200,000 |
| 2 | Yilo Krobo | 118 | 740 | 888,000 | 600 | 300,000 | 500 | 400,000 | 350 | 700,000 |
| | Sub-total | 177 | 940 | 1,128,000 | 900 | 900,000 | 650 | 520,000 | 450 | 900,000 |
| | | | | | | | | | | |
| | | | Blue Skies (MT) | Value (GHC) | Shoprite (MT) | Value (GHC) | Local Traders (MT) | Value (GHC) | Export (MT) | Value (GHC) |
| 3 | Akorley pack house | | 84 | 126,000 | 50 | 60,000 | 73 | 69,350 | 560 | 2,257,920 |
| | Sub-total | | 84 | 126,000 | 50 | 60,000 | 73 | 69,350 | 560 | 2,257,920 |
| | | | | | | | | | | |
| | TOTAL | | 1,024 | 1,254,000 | 950 | 960,000 | 723 | 589,350 | 1,010 | 3,157,920 |

ANNEX 3. SUMMARY OF TRAINING RESULTS OF MANGO VC PROGRAMMES IN BURKINA FASO -2015

SITUATION DES FORMATIONS REALISEES AU BURKINA FASO (Données Provisoires)

| Localités | Partenaires | Thème | Effectives participants | Date d'exécution |
|--------------------------------|-------------|---|-------------------------|-----------------------|
| Orodara | DAFANI.SA | Techniques de récolte des mangues | 20 | 30/06/2015-01/07/2015 |
| Bandougou | DAFANI.SA | Techniques de récolte des mangues | 20 | 30/06/2015-01/07/2016 |
| Kourounion | DAFANI.SA | Techniques de récolte des mangues | 21 | 02/07/2015-03/07/2015 |
| Toussianbandougou | DAFANI.SA | Techniques de récolte des mangues | 20 | 02/07/2015-03/07/2016 |
| Tin | DAFANI.SA | Techniques de récolte des mangues | 20 | 05-06/07/2015 |
| Mondon | DAFANI.SA | Techniques de récolte des mangues | 20 | 04-05/07/2015 |
| Moussodougou | DAFANI.SA | Techniques de récolte des mangues | 20 | 09-10/07/2015 |
| Badara | DAFANI.SA | Techniques de récolte des mangues | 20 | 09-10/07/2015 |
| Diéri | DAFANI.SA | Techniques de récolte des mangues | 19 | 11-12 /07/2015 |
| Diossogo | DAFANI.SA | Techniques de récolte des mangues | 20 | 11-12 /07/2015 |
| Sous Total- Avec DAFANI | | | 200 | |
| Bobo Dioulasso | APEMAB | Techniques de récolte des mangues & conditionnement | 59 | 10-13/08/2015 |
| Sous Total Avec APEMAB | | | 59 | |
| Orodara | APROMAB | Techniques de récolte des mangues & conditionnement | 27 | 03-04/08/2015 |
| Léo | APROMAB | Techniques de récolte des mangues | 30 | 07-08/08/2015 |
| Réo | APROMAB | Techniques de récolte des mangues | 29 | 10-11/08/2015 |
| Koudougou | APROMAB | Bon pratique de production et Techniques de récolte des mangues | 30 | 12-13/08/2015 |
| Sindou | APROMAB | Techniques de récolte des mangues | 30 | 17-18/08/2015 |
| Banfora | APROMAB | Techniques de récolte des mangues | 30 | 20-21/08/2015 |
| Bobo Dioulasso | APROMAB | Techniques de récolte des mangues | 30 | 24-25/08/2015 |
| Sous Total avec APROMAB | | | 206 | |
| TOTAL | | | 465 | |

ANNEX 4. TRAINING RESULTS DATA OF MANGO VC IN GHANA, BURKINA FASO AND SENEGAL 2015

| Country | Beneficiary | Type of Training | Date | No. of Participants | | | Location |
|--------------|---|--|------------------------------|---------------------|------|--------|----------------------------|
| | | | | Total | Male | Female | |
| GHANA | Akorleypack house | Training on Machine/Equipment Handling for machine operators of Akorley Mango pack house at Somanya | June 22 - 26, | 6 | 6 | 0 | AkorleyPack house, Somanya |
| | Dangme West Mango Farmers Association (DAMFA) | Training in Best Practices for Mango Production (Fruit flies control, harvesting techniques) | July 10, 13, & July 15 & 16, | 59 | 36 | 23 | Agomeda-Dodowa |
| | Yilo Krobo Mango Farmers Association (YKMFA) | | July 21, 22 & 23, | 118 | 106 | 12 | Somanya |
| Sub-Total | | | | 183 | 148 | 35 | |
| BURKINA FASO | DAFANI | Training in Best Harvesting Techniques on Mango Plantations for Harvesters & Collectors of DAFANI SA | | | | | |
| | Orodara | | July 1 - 2 , | 20 | 15 | 5 | Orodara |
| | Bandougou | | July 1 - 2 , | 20 | 14 | 6 | Bandougou |
| | Toussian-Bandougou | | July 3 - 4 , | 20 | 7 | 13 | Toussian-Bandougou |
| | Kourinion | | July 3 - 4 , | 22 | 10 | 12 | Kourinion |
| | Mondon | | July 5 - 6 , | 20 | 18 | 2 | Mondon |
| | Tin | | July 6 - 7 , | 19 | 10 | 9 | Tin |
| | Moussodougou | | July 9 - 10 , | 20 | 20 | 0 | Moussodougou |
| | Badara | | July 9 - 10 , | 20 | 19 | 1 | Badara |
| | Diéri | | July 11 - 12 , | 19 | 19 | 0 | Diéri |
| | Diossogo | | July 11 - 12 , | 20 | 20 | 0 | Diossogo |
| | Sub Total DAFANI | | | 200 | 152 | 48 | |

| | | | | | | | |
|------------------|------------------------|---|---------------------|------------|------------|------------|----------------|
| | APROMAB | Training in Best Practices for Mango Production (Fruit flies control, harvesting techniques) | | | | | |
| | Orodara | | August 3 - 4 , 2015 | 27 | 22 | 5 | Orodara |
| | Léo | | August 3 - 4 , | 30 | 30 | 0 | Léo |
| | Réo | | August 10 - 11 | 29 | 27 | 2 | Réo |
| | Koudougou | | August 12 - 13 | 31 | 25 | 6 | Koudougou |
| | Sindou | | August 17 - 18 | 29 | 26 | 3 | Sindou |
| | Banfora | | August 20 - 21 | 31 | 25 | 6 | Banfora |
| | Bobo Dioulasso | | August 24 - 26 | 33 | 33 | 0 | Bobo Dioulasso |
| | Subtotal APROMAB | | | 210 | 188 | 22 | |
| | APEMAB | Training in Best Harvesting Techniques for Harvesters | | | | | |
| | Bobo Dioulasso | | August 10 - 12 | 59 | 51 | 8 | Bobo Dioulasso |
| Sub-Total | | | | 469 | 391 | 78 | |
| | CFAHS & DPV | | | | | | |
| SENEGAL | Sangalkam | Training of Trainers in Best Practices for Mango Production (Fruit flies control, Harvesting Techniques, etc) | July 15 - 17, | 27 | 24 | 3 | Sangalkam |
| | Gorom I | | July 24 - 27 | 24 | 17 | 7 | Gorom I |
| Sub-Total | | | | 51 | 41 | 10 | |
| TOTAL | | | | 703 | 580 | 123 | |

Source THN. Mango VC specialists in Burkina Faso, Ghana and Senegal- 2015 August

ANNEX 5, LIST OF REPRESENTATIVES OF ENTERPRISES AND FARMERS PARTICIPATED IN TRAINING ON BEST PRACTICES OF MANGO FARMING AND HARVESTING IN SENEGAL

| N° | Structures | Statute | Responsables | Nombre de personnes formées |
|--------------|--|---------|--|-----------------------------|
| 1 | AGRONEGOCE | Ets | Ouma Sow | 1 |
| 2 | ANS INTER-EXPORT | Ets | AmadouNdiayeSeck 779101493/ 338269258 | 2 |
| 3 | BNO | Ets | PathéDia 776472462 | 1 |
| 4 | COOPROFEL | OP | AmadouDiakhaté 765948282 | 6 |
| 5 | COOPROMA | OP | MaguetteNdiaye 70 400 6552 | 2 |
| 6 | E3LOTHIS | Ets | DabySy | 1 |
| 7 | EANGDS | Ets | Massamba SALL SAMB | 2 |
| 8 | ECOFLEX | Ets | BabacarSarr | 2 |
| 9 | ESCALE AFRIQUE | Ets | SaerNiang 775644645 | 2 |
| 10 | Ets Hann | Ets | Djibril Hann 775263726 | 2 |
| 11 | EXOPRIM | Ets | Abdoulaye Traorè | 1 |
| 12 | FAPD | OP | Matar Ndoeye 765865176 | 1 |
| 13 | Fédération des producteurs maraichers des Niayes(FPMN) | OP | Ibrahima Mbengue | 4 |
| 14 | GIE MBENGUE ET FILS | GIE | Andiaye Mbengue 776559037 | 1 |
| 15 | HORTICA SENEGAL | Ets | Charles Haddad 77635 10 95 | 1 |
| 16 | Indépendant (GDS) | Ind | Khadidiatou Niang | 1 |
| 17 | Laure Agro | Ets | Yasmine Hachem | 2 |
| 18 | Master SARL | Ets | Cheikh NGANE, Gérant | 1 |
| 19 | MB Fruits tropicaux | Ets | Moustapha Mbaye 778451836 | 3 |
| 20 | MINAME Export | Ets | Amadou Lamine DIALLO | 1 |
| 21 | Ngueya | Ets | Mamour Gueye | 2 |
| 22 | SANEPRO | Ets | Seydou Ibrahima Sall | 2 |
| 23 | UNPM | OP | Masseye Diongue | 8 |
| TOTAL | | | | 49 |

Source – THN Senegal (Mango VC specialist M.Dabo-2015 August